WHAT IS CLAIMED IS:

1. A method of encoding and decoding motion picture comprising the steps of:

dividing a middle frame at about the midpoint between a previous key frame and a succeeding key frame in chronological order into a large number of patch-like regions according to its textural characteristics;

estimating forward and backward motion vectors based on the previous key frame and the succeeding key frame respectively for each of the region-divided patch images in the middle frame;

evaluating the reliability of each of the estimated forward and backward motion vectors to encode information on the motion picture including information on the previous and succeeding key frames, the patch images in the middle frame, the forward and backward motion vectors, and the reliability of each of the vectors;

decoding frames near the previous key frame by interpolating the forward motion vectors between the previous key frame and the patch images in the middle frame;

decoding frames near the succeeding key frame by interpolating the backward motion vectors between the patch images in the middle frame and the succeeding key frame; and

decoding frames between the previous key frame and the succeeding key frame by interpolating either of the motion vectors that has higher reliability to compensate for their motion.

2. The method according to claim 1 further comprising the step of encoding the motion picture by estimating a global motion between the previous key frame and the succeeding key frame, wherein when unintentional non-prediction occurs in the patches as a result of the global motion estimation,

the center portion of an image in each of frames previous to the middle frame is decoded using the texture of the succeeding frame,

the outside edge portion of the image in each of frames previous to the middle frame is decoded using the texture of the previous frame,

the center portion of the image in each of frames subsequent to the middle frame is decoded using the texture of the previous frame, and

the outside edge portion of the image in each of frames subsequent to the middle frame is decoded using the texture of the succeeding key frame.

3. A motion picture encoding device comprising:

means for dividing a middle frame at about the midpoint between a previous key frame and a succeeding key frame in chronological order into a large number of patch-like regions according to its textural characteristics;

means for estimating forward and backward motion vectors based on the previous key frame and the succeeding key frame respectively for each of the region-divided patch images in the middle frame;

means for evaluating the reliability of each of the estimated forward and backward motion vectors; and

means for transmitting the motion picture by encoding information on the previous and succeeding key frames, the patch images in the middle frame, the forward and backward motion vectors, and the reliability of each of the vectors.

4. The motion picture decoding device for decoding the motion picture data coded by said motion picture encoding device according to claim 3, comprising:

means for decoding frames near the previous key frame by interpolating the forward motion vectors between the previous key frame and the patch images in the middle frame to compensate for their motion;

means for decoding frames near the succeeding key frame by interpolating the backward motion vectors between the patch images in the middle frame and the succeeding key frame to compensate for their motion; and

means for decoding frames between the previous key frame and the succeeding key frame by interpolating either of the motion vectors that has higher reliability to compensate for their motion.